

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:

Takeshi OHMATSUZAWA, et al.

Serial No.: Unassigned

Group:

Filed: Concurrently

Examiner:

FOR: CATALYST FOR POLYESTER PRODUCTION, PROCESS FOR PRODUCING  
POLYESTER USING THE CATALYST, POLYESTER OBTAINED BY THE PROCESS,  
AND USES OF THE POLYESTER

Date: December 21, 2001

The Hon. Commissioner of  
Patents and Trademarks  
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Preliminary to examination, please amend the herewith filed  
application as follows:

IN THE SPECIFICATION

Please amend the full paragraph on page 8, lines 3-15 to  
read as follows:

One of the present applicants has found that the main cause  
of the stain of a mold in the molding process resides in that  
large amounts of oligomers such as a cyclic trimer are produced  
in the molding of the polyester to increase the total amount of  
the oligomers such as a cyclic trimer contained in the polyester,  
and has also found that the increase of the oligomers such as a  
cyclic trimer can be remarkably inhibited by bringing the

polyester obtained through the solid phase polycondensation into contact with water or the like, so they have proposed this in Japanese Patent Laid-Open Publication No. 283393/1996.

A marked-up copy of the amended paragraph showing the changes made therein is attached hereto.

IN THE CLAIMS

Please cancel claims 5-11, 13-20 and 65-72 in their entirety and without prejudice.

Please amend the remaining claims as follows:

4. (Amended) A catalyst for polyester production comprising:

a polycondensation catalyst component comprising the solid titanium compound (I-a) of claim 1 or the titanium-containing solid compound (I-b) of claim 2, and

(II) a co-catalyst component comprising a compound of at least one element selected from the group consisting of beryllium, magnesium, calcium, strontium, barium, boron, aluminum, gallium, manganese, cobalt, zinc, germanium, antimony and phosphorus.

31. (Amended) A process for producing a polyester comprising polycondensing an aromatic dicarboxylic acid or an ester-forming derivative thereof and an aliphatic diol or an ester-forming derivative thereof in the presence of the catalyst as claimed in any one of claims 1, 2, 12, 21, 23, 26 or 28.

48. (Amended) The method for treating a polyester as

claimed in any one of claims 45 to 46, wherein the organic solvent is isopropanol or acetone.

49. (Amended) The method of treating a polyester as claimed in any one of claims 45 to 46, wherein polyethylene terephthalate, which is obtained by the use of a titanium compound catalyst and in which the reaction has been completed, is treated.

53. (Amended) The method for treating a polyester as claimed in claim 50, wherein the organic solvent is selected from alcohols, saturated hydrocarbons and ketones.

54. (Amended) The method for treating a polyester as claimed in claim 50, wherein the organic solvent is isopropanol or acetone.

55. (Amended) The method for treating a polyester as claimed in claim 50, wherein polyethylene terephthalate, which is obtained by the use of a titanium compound catalyst and in which the reaction has been completed, is treated.

56. (Amended) A polyester (P-1) obtained by polycondensing an aromatic dicarboxylic acid or an ester-forming derivative thereof and an aliphatic diol or an ester-forming derivative thereof in the presence of a catalyst for polyester production comprising:

a polycondensation catalyst component comprising a solid titanium compound (I-c) obtained by dehydro-drying a hydrolyzate obtained by hydrolyzing a titanium halide, and

(II) a co-catalyst component comprising a compound of at least one element selected from the group consisting of beryllium, magnesium, calcium, strontium, barium, boron, aluminum, gallium, manganese, cobalt, zinc, germanium, antimony and phosphorus,

wherein the titanium content is in the range of 1 to 100 ppm, the magnesium content is in the range of 1 to 200 ppm, and the weight ratio (Mg/Ti) of magnesium to titanium is not less than 0.01.

77. (Amended) A blow molded article obtained from the polyester (P-4) as claimed in any one of claims 62 or 63 and having a cyclic trimer content of not more than 0.6% by weight.

78. (Amended) A perform for a blow molded article which is obtained from a polyester (P-5) having the following properties:

when the ratio (L/T) of a flow length (L) to a flow thickness (T) in the injection molding of said polyester at 290°C is taken as Y and the intrinsic viscosity of a molded product obtained by the injection molding is taken as X(dl/g), X and Y satisfy the following relation  $Y \geq 647-500X$ .

79. (Amended) A blow molded article obtained from the perform of claim 78.

A marked-up copy of the amended claims showing the changes made is attached hereto.

REMARKS

Entry of the foregoing amendment prior to examination of this application is respectfully requested in view of the following comments.

The amendments to the specification have been made to correct minor errors and correspond to the same amendments made in the parent application. Specifically, only one of the named inventors in Japanese Patent Laid-Open Publication No. 283393/1996 is also one of the named inventors in this application, while Japanese Patent Laid-Open Publication No. 97990/1993, is not commonly assigned with this application and has no common inventorship. However, this publication was previously discussed on page 6, lines 11-17.

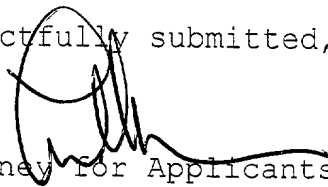
Accordingly, none of these amendments introduces new matter into the application, but simply clarify the relationships of the prior disclosures to the present invention.

The amendments to the claims have been made to correct improper multiple dependencies and, where necessitated by cancellation of a prior claim, to correct the dependency of remaining claims. In addition, where necessitated by cancellation of a prior claim, the limitations of the cancelled claim have been incorporated into remaining claims to eliminate any prospective problem raised by lack of antecedent basis.

Applicants respectfully submit that no new matter has been entered into the claims.

In view of the foregoing amendments, claims 1-4, 12, 21-64 and 73-79 are herewith presented for examination.

Respectfully submitted,



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## Marked-up Paragraph From Specification

Paragraph on page 8, lines 3-15

[The] One of the present applicants [have] has found that the main cause of the stain of a mold in the molding process resides in that large amounts of oligomers such as a cyclic trimer are produced in the molding of the polyester to increase the total amount of the oligomers such as a cyclic trimer contained in the polyester, and has also found that the increase of the oligomers such as a cyclic trimer can be remarkably inhibited by bringing the polyester obtained through the solid phase polycondensation into contact with water or the like, so they have proposed this in Japanese Patent Laid-Open [Publications No. 97990/1993 and] Publication No. 283393/1996.

## Marked-up Claims

4. (Amended) A catalyst for polyester production comprising:  
a polycondensation catalyst component comprising the solid titanium compound (I-a) of claim 1 [and/or] or the titanium-containing solid compound (I-b) of claim 2, and  
(II) a co-catalyst component comprising a compound of at least one element selected from the group consisting of beryllium, magnesium, calcium, strontium, barium, boron, aluminum, gallium, manganese, cobalt, zinc, germanium, antimony and phosphorus.

31. (Amended) A process for producing a polyester comprising  
polycondensing an aromatic dicarboxylic acid or an ester-forming derivative thereof and an aliphatic diol or an ester-forming derivative thereof in the presence of the catalyst as claimed in any one of claims 1 [to 30] , 2, 12, 21, 23, 26 or 28.

48. (Amended) The method for treating a polyester as claimed in any one of claims 45 to [47] 46, wherein the organic solvent is isopropanol or acetone.

49. (Amended) The method of treating a polyester as claimed in any one of claims 45 to [48] 46, wherein polyethylene terephthalate, which is obtained by the use of a titanium compound catalyst and in which the reaction has been completed, is treated.

53. (Amended) The method for treating a polyester as claimed in [any one of claims 50 to 52] claim 50, wherein the organic solvent is selected from alcohols, saturated hydrocarbons and ketones.

54. (Amended) The method for treating a polyester as claimed in [any one of claims 50 to 53] claim 50, wherein the organic solvent is isopropanol or acetone.



55. (Amended) The method for treating a polyester as claimed in [any one of claims 50 to 54] claim 50, wherein polyethylene terephthalate, which is obtained by the use of a titanium compound catalyst and in which the reaction has been completed, is treated.

56. (Amended) A polyester (P-1) obtained by polycondensing an aromatic dicarboxylic acid or an ester-forming derivative thereof and an aliphatic diol or an ester-forming derivative thereof in the presence of [the] a catalyst for polyester production [as claimed in claim 6 or 10] comprising:

a polycondensation catalyst component comprising a solid titanium compound (I-c) obtained by dehydro-drying a hydrolyzate obtained by hydrolyzing a titanium halide,  
and

(II) a co-catalyst component comprising a compound of at least one element selected from the group consisting of beryllium, magnesium, calcium, strontium, barium, boron, aluminum, gallium, manganese, cobalt, zinc, germanium, antimony and phosphorus,

wherein the titanium content is in the range of 1 to 100 ppm, the magnesium content is in the range of 1 to 200 ppm, and the weight ratio (Mg/Ti) of magnesium to titanium is not less than 0.01.

77. (Amended) A blow molded article obtained from the polyester (P-4) as claimed in any one of claims 62 [to 64] or 63 and having a cyclic trimer content of not more than 0.6% by weight.

78. (Amended) A perform for a blow molded article which is obtained from [the] a polyester (P-5) [as claimed in any one of claims 65 to 72] having the following properties:

when the ratio (L/T) of a flow length (L) to a flow thickness (T) in the injection molding of said polyester at 290°C is taken as Y and the intrinsic viscosity of a molded product obtained by the injection molding is taken as X(dl/g). X and Y satisfy the following relation  $Y \geq 647-500X$ .

79. (Amended) A blow molded article obtained from the [polyester (P-5) as claimed in any one of claims 65 to 72] perform of claim 78.